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REFERENCE

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SIX NEW SPECIES OF *TENTHREDO* LINNAEUS (HYMENOPTERA: TENTHREDINIDAE) FROM NORTHERN INDIA¹

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(With twenty nine text-figures)

Six new species of *Tenthredo* are reported from the hills of Northern India, viz. *T. icari*, *T. manii*, *T. scabrocephala*, *T. flatoserrulata*, *T. auratotarsus* and *T. alami*. Apart from illustrating the genitalia, the new species have been separated from already reported related congeners. The population variation, if any, has also been discussed.

INTRODUCTION

Though taxonomic work on Indian *Tenthredo* is quite scattered, Malaise's (1945) paper is such an exhaustive study that, in addition to compiling almost all the earlier works for southeast Asia, it adds 18 new species of this genus from India. Mucho's (1982, 1983) are the only works after Malaise (1945), which make an addition of three new species to the earlier census of Indian *Tenthredo* and bring the total number of species described so far from this country to 82. In the present study, which is one of a series of papers dealing with new records of *Tenthredo* from India, six new species are reported from the northern region.

The terminology used by Ross (1937, 1945) and Malaise (1945) has been followed.

The holotypes and paratypes are presently lying in the authors' collection and will be submitted to IARI, Pusa National Collection, New Delhi (India), after this paper is published.

***Tenthredo icari* sp. nov.**
(Figs. 1, 7, 13, 19, 25)

FEMALE: Average length 11.6 mm. Body black, yellowish are: underside of antennal segment 5, and 6-9 entirely; mandible except extreme apex; face below antenna; extreme tip of supraantennal tubercle; narrow inner orbit; lower 1/3 of hind orbit; spot on temple without touching eye; broad dorsal angle and antero-lateral spot on pronotum; tegula; triangular apex of mesonotal middle lobe; meso- and metascutelli; large spot on appendage;

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anteromedial spot on metapostnotum; large spot along convexity of mesepisternum; metepisternum; hind margin of tergum 2 broadening towards lateral side and deflexed sides of 2-7; medial elliptical spot along hind margins of terga 3-7 (more prominent on 8) and 9 entirely; hind margin and 3 spots on each sternum; trochanters and adjoining parts of coxae and femora; proximal 3/5 of metatibia and tarsus entirely. Distal half of profemur anteriorly, pro- and mesotibiae and tarsi, except infuscated tips of tarsal joints, yellowish brown. Wings yellowish hyaline, forewing infumated towards apex, costa and stigma reddish brown, venation dark brown to black.

Antenna slightly compressed towards apex, $2.5 \times$ head width, segments 3 and 4 in ratio 5:4; clypeus (Fig. 1) narrowly, roundly incised upto $2/7$ of its medial length; labrum broader than long in ratio 4:3 with deflexed and roundly pointed anterior margin; malar space $1.5 \times$ diameter of lateral ocellus; LID:IDMO:EL = 2.0:2.8:2.2; OOL:POL:OCL = 3.2:1.0:2.0; frontal area below level of eyes; supraantennal tubercle strongly raised and abruptly cut off from low frontal ridge; median fovea deep in anterior half only; circum-, inter- and postocellar furrows distinct; lateral furrow narrow and sunken; postocellar area subconvex with faint indication of longitudinal carina, broader than long in ratio 8:5; head slightly narrowing behind eyes; ITD:ICD = 3.5:1.0; mesoscutellum roundly raised with blunt transverse carina; appendage slightly carinate; mesepisternum obtusely raised with short carina at apex; mesosternal thorns lacking; apical tooth of claw (Fig. 7) longer than subapical; metabasitarsus longer than following 3, but distinctly shorter than all-remaining joints combined; metafemur as long as tibia.

Head subshining having minute and shallow punctures, punctures large and confluent in frontal region; mesonotum with shallow and

confluent punctures along with microsculpture; mesoscutellum shallowly and densely punctured; appendage minutely wrinkled with a few distinct punctures; metanotum and scutellum almost impunctate; mesepisternum with large, shallow and almost confluent punctures; mesosternum minutely punctured and distinctly microsculptured; abdomen faintly microstriated with dense punctures on terga 4-9.

Lancet (Fig. 25) with 19 serrulae, each serrula deep and lobe-like without anterior or posterior subbasal teeth.

MALE: Length 10.1 mm. Similar to female except: antennal segment 5 yellowish barring infuscation on underside; hind orbit without black and continuous with pale spot on temple; appendage entirely black; mesosternum having medial yellowish brown spot; scape brown; all femora with a black stripe posteriorly. Penis valve (Fig. 13) and gonoforceps (Fig. 19).

Holotype: Female, Uttar Pradesh, Mandal-2300 m, 13.6.1983.

Paratypes: 3 ♀♀, with same data as holotype. 1 ♂, Uttar Pradesh, Mussorie-2000 m, 3.6.1985.

Remarks: This new species shows a remarkable similarity to *T. seriata* Malaise, 1945. However, it is distinguished from the latter on account of possessing entirely black postocellar area, partly black appendage, pale metafemur with black stripe in male, reddish brown stigma and antennal segments 3 and 4 in ratio 5:4.

In *T. seriata* postocellar area has pale medial longitudinal stripe, appendage is entirely pale, metafemur is without pale, stigma is black and antennal segments 3 and 4 are in ratio 3:2.

Etymology: This species has been named after the agency that provided financial assistance for this work.

Tenthredo manii sp. nov.

(Figs. 2, 8, 14, 20, 26)

FEMALE: Average length 14.4 mm. Body reddish yellow with following pale: face below antenna; narrow inner orbit; spot touching eye on lower hind orbit; V-shaped margin of mesonotal middle lobe and spot adjoining it on lateral lobe; nebulous spot on meso- and metepisterna. Dark brown to black are: dot-like spot on outer side of antennal segment 2, extreme tip and underside of 5 and 6-9 entirely; mandible tip; anterior half of median fovea; spot in front of median ocellus; inter- and postocellar areas; posterolateral spot on pronotum; anteromedial spot on mesonotal middle lobe and large spot on lateral lobe; lateral spot on metanotum and postnotum; parapterum; narrow border of mesopleuron all round; nebulous spot on mesosternum; anterior border of metepisternum; metepimeron. Wings yellowish hyaline, apex of forewing infuscated upto proximal end of stigma with distinct limit, hind one infumated towards apex, costa and stigma reddish yellow with infuscated spot on latter, venation dark brown to black.

Antenna compressed, $2.6 \times$ head width, segments 3 and 4 in ratio 8:7; clypeus (Fig. 2) roundly incised upto $\frac{1}{4}$ of its medial length; labrum as long as broad with roundly pointed anterior margin; malar space $1.5 \times$ diameter of lateral ocellus; LID:IDMO:EL = 2.0:2.8:2.4; OOL:POL:OCL = 4.1:1.0:3.1; frontal area below level of eyes; supraantennal tubercle distinctly raised, sloping back and confluent with distinct frontal ridge; median fovea deep with pit in front of median ocellus, faintly carinate in anterior half; circum-, inter- and postocellar furrows distinct; lateral furrow narrow and clear; postocellar area almost flat with faint longitudinal carina, broader than long in ratio 6:5, head indistinctly dilated

behind eyes; ITD:ICD = 3.0:1.0; mesoscutellum roundly raised with faint longitudinal carina on posterior slope; appendage slightly carinate; mesepisternum obtusely raised with short and blunt carina at apex; mesosternum lacking thorns; apical tooth of claw (Fig. 8) longer than subapical; metabasitarsus as long as following 3 joints combined; metafemur slightly longer than tibia.

Head minutely and densely punctured; mesonotum densely punctured with faint microsculpture; mesoscutellum punctured like notum with somewhat larger punctures on posterior slope; appendage having shallow and confluent punctures; metanotum minutely punctured; metascutellum almost impunctate; mesepisternum uniformly and shallowly punctured with sebaceous lustre; mesosternum punctulate with faint microsculpture; propodeum glabrate, remaining terga minutely and densely punctured.

Lancet (Fig. 26) with 28 serrulae; each serrula is almost flat having 2 anterior and upto 16 posterior subbasal teeth.

MALE: Average length 12.5 mm. Similar to female except: antennal segments 1-5 with complete black stripe along outer side; mesosternum without black. Penis valve (Fig. 14) and gonoforceps (Fig. 20).

Holotype: Female, Uttar Pradesh, Mandal-2300 m, 16.6.1985.

Paratypes: 8 ♀♀, 9 ♂♂, with same data as holotype. 1 ♀, 1 ♂, Uttar Pradesh, Gobind-dham-3000 m, 21.6.1985.

Population variation: Only anterior 1/3 of postocellar area black; median fovea totally black; pale colour more distinct.

Remarks: This new species is related to two species of the group having reddish yellow body and forewing with distinctly infuscated apex, viz. *T. purpureipennis* Malaise, 1945 and *T. tuberculifera* Konow, 1898. However, it can be distinguished from both of them on account of having several black markings on head and

thorax, reddish yellow abdomen and legs without black, supra-antennal tubercle confluent with frontal ridge, mesosternum without thorns, mesepisternum shallowly punctured and each serrula of lancet with 2 anterior and upto 16 posterior subbasal teeth.

In *T. purpureipennis*, head and thorax are without black, 5 basal abdominal terga and tarsi are pale, tip of abdomen is black, supra-antennal tubercle is separated from frontal ridge and mesepisternum is impunctate.

In *T. tuberculifera*, apex of the abdomen is black, mesosternum has short and blunt thorns and each serrula has a single anterior and 8-10 posterior subbasal teeth.

Etymology: This species has been named in honour of Dr. M. S. Mani, a pioneer and dedicated worker in the field of high altitude entomology in India.

***Tenthredo scabrocephala* sp. nov.**
(Figs. 3, 9, 15, 21, 27)

FEMALE: Average length 10.5 mm. Body sordid yellow, black are: antennal segment 1, extreme tip of 7, 8-9 entirely and outer stripe along remaining; extreme mandible tip; broad frontal spot anteriorly covering median fovea leaving tip of supraantennal tubercle, laterally reaching (without touching) inner eye margin and posteriorly reaching hypothetical hind margin of head; postocellar area; spot on temple continuous with frontal spot; large lateral spot on posterior side of head; narrow medial transverse stripe and spot on dorsal angle of pronotum; mesonotum except antero-lateral triangular spot on middle lobe and spot outer to scutellum on lateral lobe; meso-scutellum; appendage except lateral aspect; hind margin of metapostnotum; narrow stripe along each pleural suture and spot at apex of mesepisternum; narrow basal margin of terga 1 and 2; abdominal segments 5-9; outer stripe

on metacoxa; posterior stripe along meso- and metacoxae, all trochanters and femora, pro- and mesotibiae, both ends of metatibia; proximal halves of basitarsi. Wings clear, forewing faintly infumated towards apex, stigma and venation brown to black.

Antenna stout and filiform, $1.8 \times$ head width, segments 3 and 4 in ratio 3:2; clypeus (Fig. 3) roundly incised upto $2/5$ of its medial length; labrum broader than long in ratio 6:5 with rounded anterior margin; malar space $2.2 \times$ diameter of lateral ocellus; LID:IDMO:EL = 2.0:2.8:1.9; OOL:POL:OCL = 2.5:1.0:1.6; frontal area flat, slightly below level of eyes; supraantennal tubercle faintly raised and merging into similar frontal ridge; median fovea inconspicuous with pit inner to supra-antennal tubercle; circum-, inter- and post-ocellar furrows insignificant; lateral furrow fine, superficial and diverging posteriorly; postocellar area slightly raised, broader than long in ratio 7:4 at maximum width; head neither dilated nor narrowing behind eyes; ITD:ICD = 3.2:1.0; mesoscutellum roundly raised with distinct longitudinal carina on posterior slope; appendage carinate; mesepisternum raised to acute apex; mesosternum lacking thorns; apical tooth of claw (Fig. 9) slightly longer than subapical; metabasitarsus shorter than following 3 joints combined; metafemur shorter than tibia.

Head rough, densely punctured with faint microsculpture, hind orbit shallowly punctured; mesonotum, scutellum and appendage punctured like head; metanotum and scutellum with shallow and distinct punctures; mesepisternum and sternum having sebaceous lustre owing to minute and swallow punctures along with faint microsculpture; abdomen subshining with faint microstriations.

Lancet (Fig. 27) with 20 serrulae, each serrula is low having 2 anterior and about 15 small posterior subbasal teeth.

MALE: Average length 9.1 mm. Similar to female except: all tarsi with complete black stripe posteriorly; apex of forewing distinctly infuscated up to base of 3rd cubital cell; black stripe on metatibia complete. Penis valve (Fig. 15) and gonoforceps (Fig. 21).

Holotype: Female, Uttar Pradesh, Chopta-3000 m, 13.6.1985.

Paratypes: 1 ♀, 7 ♂♂, with same data as holotype. 1 ♂, Uttar Pradesh, Flower Valley-3300 m, 21.6.1985.

Population variation: Mesoscutellum black; terga 3-4 with narrow stripe along hind margin interrupted in middle.

Remarks: This new species exhibits some resemblance to *T. striaticornis* Malaise, 1945. However, it is differentiated from the latter in having sordid yellow thorax with black markings, antennal segments 3 and 4 in ratio 3:2, inconspicuous lateral furrow of postocellar area and strongly and densely punctured head.

In *T. striaticornis*, thorax is black, antennal segments 3 and 4 are subequal, lateral furrow of postocellar area is deep and head is shining with a few minute punctures.

Etymology: The species name pertains to roughness of head.

***Tenthredo flatoserrulata* sp. nov.**

(Figs. 4, 10, 16, 22, 28)

FEMALE: Average length, 10.7 mm. Body sordid yellow to pale green, black are: antenna; mandible tip; small spot outer to supraantennal tubercle; broad oblique band connecting lateral furrow of postocellar area with inner eye margin; narrow stripe along hypothetical postocellar furrow; large lateral spot on posterior side of head; transverse medial stripe without reaching lateral aspect on pronotum; seams of mesonotum and broad band along outer margin of lateral lobe; visible part of mesopostnotum; metanotum except spot lateral to scutellum; narrow hind margin of metapost-

notum; band along basal margin of propodeum; broad medial spots on all terga (together appearing as a continuous band increasing in width towards distal end); posterior stripe along trochanters, femora, pro- and mesotibiae and tarsi; metatibia except narrow stripe anteriorly and tarsus entirely. Wings hyaline, fore wing indistinctly infumated towards apex, stigma and venation dark brown to black.

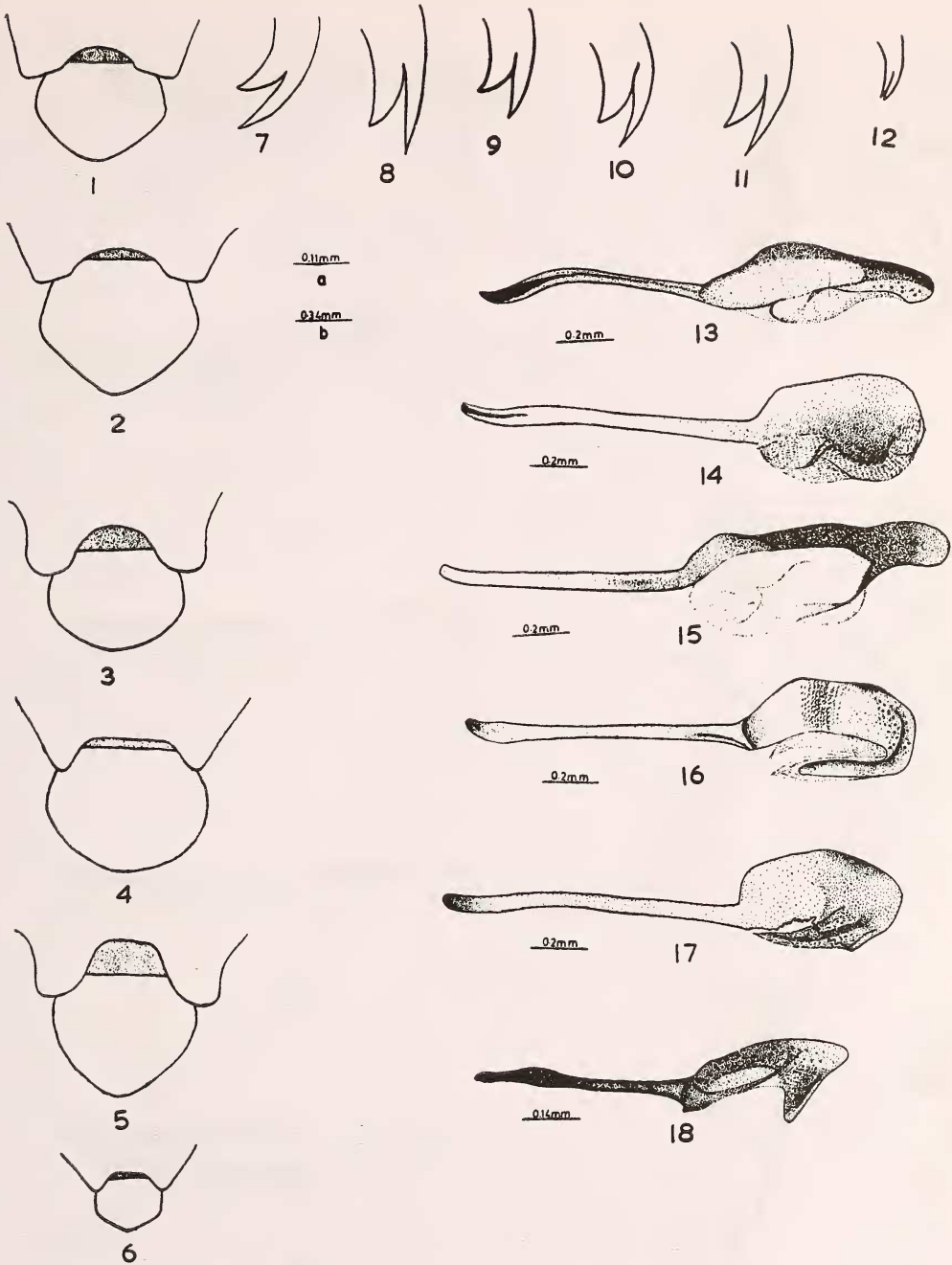
Antenna stout, slightly compressed in apical half, $2.0 \times$ head width, segments 3 and 4 in ratio 4:3; clypeus (Fig. 4) roundly incised upto $1/5$ of its medial length with triangular lateral teeth; labrum broader than long in ratio 5:4 with deflexed and roundly pointed anterior margin; malar space $1.7 \times$ diameter of lateral ocellus; LID:IDMO:EL = 2.0:3.9:2.7; OOL:POL:OCL = 4.5:1.0:3.1; lower hind orbit with distinct bump; frontal area below level of eyes; supraantennal tubercle raised and confluent with similar frontal ridge; median fovea shallow; circum- and interocellar furrows fine, postocellar one absent; lateral furrow sharp and diverging posteriorly; postocellar area flat, broader than long in ratio 4:3 at maximum width; head indistinctly narrowing behind eyes; ITD:ICD = 2.7:1.0; mesoscutellum distinctly raised with acute apex; appendage carinate; mesepisternum obtusely raised with compressed and truncate apex; mesosternum with short and flattened thorns; apical tooth of claw (Fig. 10) slightly longer than subapical; metabasitarsus distinctly shorter than following three joints combined; metafemur as long as tibia.

Head and thorax minutely and densely punctured with faint microsculpture; abdomen distinctly microstriated.

Lancet (Fig. 28) with 24 serrulae, each serrula is flat having up to 25 minute subbasal teeth without differentiation into anterior and posterior ones.

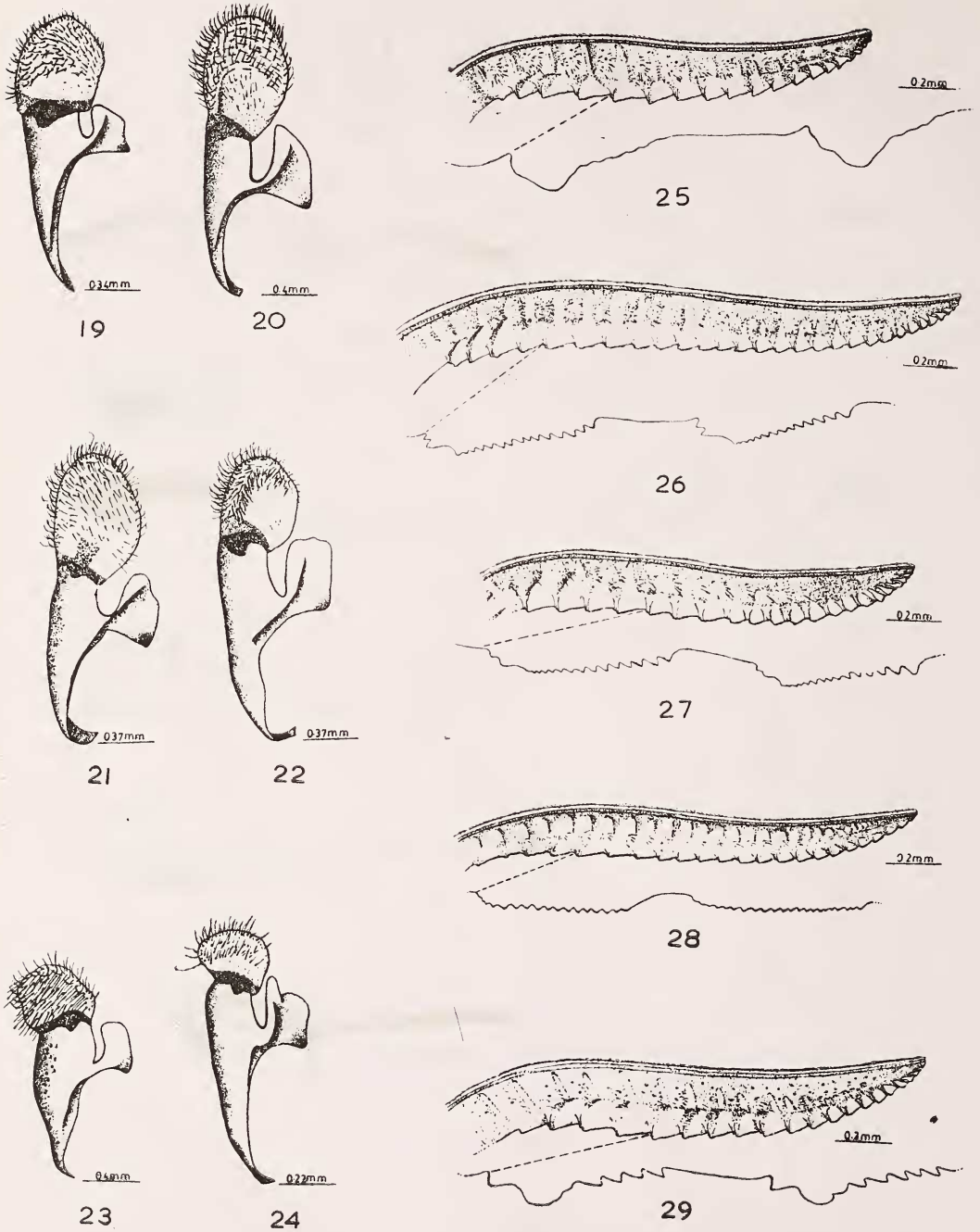
MALE: Average length 10.1 mm. Similar

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Figs. 1-18. Clypeus — 1. *T. icari*; 2. *T. manii*; 3. *T. scabrocephala*; 4. *T. flatoserrulata*; 5. *T. auratotarsus*; 6. *T. alami*. Tarsal Claw — 7. *T. icari*; 8. *T. manii*; 9. *T. scabrocephala*; 10. *T. flatoserrulata*; 11. *T. auratotarsus*; 12. *T. alami*. Penis Valve — 13. *T. icari*; 14. *T. manii*; 15. *T. scabrocephala*; 16. *T. flatoserrulata*; 17. *T. auratotarsus*; 18. *T. alami*.

Figs. 1-6 at magnification a.
 Figs. 7-12 at magnification b.



Figs. 19-29. Gonoforceps — 19. *T. icari*; 20. *T. manii*; 21. *T. scabrocephala*; 22. *T. flatoserrulata*; 23. *T. auratotarsus*; 24. *T. alami*. Lancet — 25. *T. icari*; 26. *T. manii*; 27. *T. scabrocephala*; 28. *T. flatoserrulata*; 29. *T. auratotarsus*.

to female except black spot lateral to supra-antennal tubercle continuous with oblique band. Penis valve (Fig. 16) and gonoforceps (Fig. 22).

Holotype: Female, Uttar Pradesh, Chopta-3000 m, 15.6.1985.

Paratypes: 10 ♀♀, 7 ♂♂, with same data as holotype. 1 ♀, Uttar Pradesh, Gobindghat-2200 m, 21.6.1985.

Remarks: This new species shows a definite relationship with *T. suta* Konow, 1906. However, it is separated from the latter in having a pale green head with black spot, mesopleuron and sternum without black, terga with black medial spots without pale hind margins, coxae entirely pale green and each serrula of lancet with 25 subbasal teeth without differentiation into anterior and posterior ones.

In *T. suta*, the head is black with some pale markings, mesopleuron and sternum are black with pale spots, terga have pale green hind margins, bases of all coxae are black and each serrula of lancet has single anterior and 10-15 small posterior subbasal teeth.

Etymology: The species name pertains to flat serrulae of lancet.

***Fenthredo auratotarsus* sp. nov.**

(Figs. 5, 11, 17, 23, 29)

FEMALE: Length, 11.6 mm. Body black, sordid yellow to light brown are: lateral side of mandible; posterolateral spot on pronotum; front side of profemur and tibia. Spot on lateral side of propodeum, abdominal segments 2-4, pro- and mesotarsi, reddish brown. Apical 1/3 of basitarsus and remaining tarsal joints of metaleg, golden yellow. Wings yellowish hyaline, stigma and venation brown to black.

Antenna filiform, $2.6 \times$ head width, segments 3 and 4 in ratio 5:4, clypeus (Fig. 5) semicircularly incised upto 3/5 of its medial length; labrum slightly broader than long with

narrowly rounded anterior margin; malar space $1.8 \times$ diameter of lateral ocellus; LID:IDMO:EL = 2.0:3.0:2.5; OOL:POL:OCL: 3.7:1.0:2.5; frontal area below level of eyes; supra-antennal tubercle raised, sloping back and merging into low frontal ridge; median fovea broad and shallow with deep pit inner to supraantennal tubercle; circumocellar furrow absent, inter- and postocellar ones shallow but clear; lateral furrow narrow and deep; post-ocellar area flat with longitudinal carina, broader than long in ratio 5:3; head narrowing behind eyes; ITD:ICD = 3.0:1.0; mesoscutellum slightly raised with faint transverse carina; appendage carinate; mesepisternum obtusely raised with short carina at apex; mesosternum angled without distinct thorns; apical tooth of claw (Fig. 11) longer than subapical; metabasitarsus shorter than following three joints combined; metafemur shorter than tibia.

Head covered with large, deep and almost confluent punctures, which become smaller along hind orbit; mesonotum densely but less deeply punctured than head along with strong microsculpture; mesoscutellum with faint microsculpture and large punctures; appendage punctured on lateral sides only; metanotum finely punctured; metascutellum with large and isolated punctures; mesepisternum rugose; mesosternum distinctly microsculptured with scattered punctures; propodeum with few punctures along base, remaining terga distinctly microstriated.

Lancet (Fig. 29) with 19 serrulae, each serrula having single anterior and about 6 distinct posterior subbasal teeth.

MALE: Length 10.4 mm. Similar to female except: labrum yellowish brown; front side of prothorax, mesofemur and tibia, light brown. Penis valve (Fig. 17) and gonoforceps (Fig. 23).

Holotype: Female, Uttar Pradesh, Flower Valley-3300 m, 21.6.1985.

Paratype: 1 ♂, Uttar Pradesh, Almora-2500 m, 25.7.1983.

Remarks: This new species is related to two Indian species, viz. *T. pulchra* Jakovlev, 1891 and *T. latifasciata* Cameron, 1877. However, it is distinguished from both in having reddish brown tergum 2, legs black with a few yellowish markings and metatarsus golden yellow, clypeus incised up to 3/5 of its medial length, frontal area distinctly below level of eyes, head narrowing behind eyes and lancet with 19 serrulae, each having single anterior and 6 posterior subbasal teeth.

In *T. pulchra*, tergum 2 is black, metaleg is totally black, clypeus is incised upto 1/4 of its medial length, frontal area is at level of eyes and lancet has 23 serrulae, each having 2 anterior and 8-12 posterior subbasal teeth.

In *T. latifasciata*, legs are reddish except coxae, trochanters and bases of femora, clypeus is incised upto 1/4 of its medial length, head is dilated behind eyes and lancet has 23 serrulae, each having 2 anterior and 15-17 posterior subbasal teeth.

Etymology: The species name has been taken from its characteristic golden yellow metatarsus.

***Tenthredo alami* sp. nov.**
(Figs. 6, 12, 18, 24)

FEMALE: Unknown.

MALE: Average length 6.2 mm. Body prasinus, black are: antenna except underside of segments 4-9; extreme mandible tip; frontal spot anteriorly covering median fovea leaving supraantennal tubercle, laterally touching eye margin and posteriorly reaching hypothetical hind margin of head; spot along upper eye margin continuous with frontal spot; postocellar area except narrow posterior margin; broad lateral and small medial spot on posterior side

of head; medial transverse stripe on pronotum without reaching lateral margin; mesonotum except V-shaped margin of middle lobe and spot lateral to mesoscutellum on lateral lobe; posterior slopes of meso- and metascutelli; metanotum except spot lateral to scutellum; lateral aspect of metapostnotum; narrow, irregular stripe along proximal half of mesopleural suture; oblique band on mesepisternum upto apex; broad lateral spot along anterior margin of propodeum; medial irregular spot, constricted in middle on terga 2-8 without touching anterior, posterior or lateral margins; stripe along posterior side of legs except procoxa. Wings clear, costa and stigma pale green, venation dark brown.

Antenna filiform, $2.6 \times$ head width, segment 3 slightly shorter than 4; clypeus (Fig. 6) incised upto 1/3 of its medial length with triangular lateral teeth and truncate bottom of incision; labrum broader than long in ratio 6:5 with rounded anterior margin; malar space equal to diameter of lateral ocellus; LID: IDMO:EL = 2.0:3.5:3.3; OOL:POL:OCL = 2.2:1.0:1.3; frontal area below level of eyes; supraantennal tubercle slightly raised and confluent with similar frontal ridge; median fovea narrow ditch-like; circum- and postocellar furrows absent, interocellar one faintly indicated; lateral furrow clear; postocellar area slightly raised, broader than long in ratio 2:1; head strongly narrowing behind eyes; ITD: ICD = 2.9:1.0; mesoscutellum subpyramidally raised; appendage inconspicuously carinate; mesepisternum obtusely raised without carina or acute apex; mesosternum lacking thorns; apical and subapical teeth of claw (Fig. 12) closely set and subequal; metabasitarsus slightly shorter than following three joints combined; metafemur shorter than tibia.

Head and mesonotum subshining with minute and distinct punctures; meso- and metascutelli, appendage and metanotum almost

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impunctate; mesepisternum and sternum shallowly punctured with sebaceous lustre; abdomen distinctly microstriated. Penis valve (Fig. 12) and gonoforceps (Fig. 18).

Holotype: Male, Uttar Pradesh, Valley of flowers —3300 m, 21.6.1985.

Paratype: 1 ♂, with same data as holotype.

Remarks: In Malaise's (1945) key, this new species would be near *T. nigroscalaris* Malaise, 1945. However, it is separated from the latter in possessing pale underside of antenna, frontal spot reaching hind margin of head, black bands on terga not connected laterally and black posterior slopes of scutelli.

In *T. nigroscalaris*, antenna is entirely black, frontal spot reaches hind margin of head, black

bands on terga are connected laterally to form ladder-like structure and scutelli are entirely pale green.

Etymology: This species has been named in honour of the well known hymenopterist, Dr. S. M. Alam.

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Abbreviations in text:

EL — eye length; ICD — intercenchri distance; IDMO — interocular distance at level of median ocellus; ITD — intertegular distance; LID — lower interocular distance; OCL — oculo-occipital line; OOL — oculo-ocellar line; POL — postocellar line.